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HIGHLIGHTS OF THE STRUGGLE AGAINST THE MOST IMPORTANT
INFECTIOUS DISEASES IN ARMENIAN SSR UNDER SOVIET RULE

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by
A. B. Aleksanyan

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HIGHLIGHTS OF THE STRUGGLE AGAINST THE MOST IMPORTANT INFECTIOUS
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Pre-revolutionary Armenia was a region with a high incidence of epidemics and of child mortality.

In the past, when anti-epidemic measures in Armenia were only haphazard in nature, there was not and could not be any genuine concern for the health of the population. There were neither scientific nor practical sanitary-epidemiological stations in the region, a staff of specialists was lacking.

The sanitary-epidemiological condition of pre-revolutionary Armenia reflected the Serious social-economic conditions of Tsarist times. There were widely-distributed epidemics of small pox, cholera, typhoid fever, dysentery, almost all of the population was marked by scabies, ravaged by malaria, exanthemous and recurrent typhus, child infections and many other diseases.

Epidemic diseases reached enormous proportions at the time of domination of Dashnakov (1918-1920). The population literally died off. And only after the establishment of Soviet rule in Armenia did vigorous growth of the population begin.

In order to properly evaluate the huge successes achieved by the anti-epidemic service, one must briefly shed light on the historical past which was taken in Armenia in the field of control of infectious diseases during the past 47 years (Soviet rule was established in Armenia November 29, 1920).

In connection with necessity for regulation of rights and duties of the first sanitary workers which emerged in 1923, a special decree was issued at the beginning of 1924 by the Counsel of National Economy of the Armenian SSR on Sanitary Organs of the Republic.

By the appearance of sanitary doctors in counties of the republic before the Peoples Commissariat of Health the task was introduced to treat and publish in 1926 the position of the county sanitary doctors. At the same time in order to strengthen the contact between the sanitary-epidemiological department of the Peoples Commissariat of Health and the county sanitary organs first, special meetings were organized, which served as a further basis for collective discussion and solution of sanitary-anti-epidemic questions.

In the first year of the existence of Soviet public health, treatment measures against such massive epidemic diseases as parasitic typhus, typhoid fever, cholera, dysentery, malaria, small pox, childhood infections, scabies, etc., were primarily accepted. But the absence of special scientific and practical institutions and the necessary staff obstructed extensive development of anti-epidemic work in the republic. First of all it was necessary to create scientific and practical institutions of a sanitary-epidemiological nature and to insure a staff of specialists for the republic--epidemiologists, microbiologists, parasitologists, specialists in infections, etc.

In 1923 with the help of specialists-tropicologists of the Russian Soviet Federated Socialist Republic (V. I. Kudrovskiy, K. I. Skryabin, P. P. Popov, N. P. Popov) a Tropical Institute was organized in Armenia. In 1928 a scientific research sanitary-hygienic laboratory was organized, which in 1930 was reorganized into the sanitary and hygienic institute of the Peoples Commissariat of Health of Armenia (now the Institute of Epidemiology and Hygiene).

With the organization of scientific research centers, the question of creation of a corps of specialists, mainly general sanitary doctors, epidemiologists and malariologists, became urgent before the Peoples Commissariat of Health. With this aim, a special sanitary-hygienic faculty was organized at the Yerevan Medical Institute in 1930, with the fundamental task of preparing doctor-specialists of a sanitary-epidemiological nature.

The republic was covered with an extensive network of regional and municipal prophylactic and treatment institutions. For the first time special attention was paid to organization of anti-malarial institutions. In 1923 the first anti-malarial brigade appeared, which carried out their work in the most pronounced malarial regions. Furthermore in connection with the task set by the organs of public health of eradication of malaria as a massive disease in all

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malarial regions, a network of tropical stations, dispensaries, anti-malarial centers, etc., were established. On the basis of study of the dynamics of morbidity from malaria and determination of the zone of its distribution an epidemiological chart of the distribution of malaria was created. Furthermore, this chart was changed several times to correspond with the movement of malaria and results of anti-malarial measures.

Proper organization of anti-malarial measures required the study of many epidemiological factors, in particular anopheles-breeding reservoirs and their significance, the makeup of mosquitoes, questions the regulation of household water and in the existence of marshes, distribution of malarial parasites in separate regions in times of year, etc.

As a result of the achievements of much research, of systematic change in the existence of scientifically based measures, at the present time malaria has been eradicated in the republic. An important role has been played by the complex of measures in detecting patients and parasite carriers, including their timely and radical treatment (use of bigumal, ABP preparation, BP preparation, and quinside) the subsequent clinical observation of them. Measures for destroying mosquitoes were also important. However, the determining role undoubtedly belongs to chemotherapy.

It should be noted that there are still places in the republic where malarial mosquitoes continue to exist. But, despite this, the disease of malaria is absent even in those places where high morbidity was constantly observed in the past. Thus, the facts refute the opinion that for eradication of malaria it is necessary to exterminate all mosquito-vectors at a given locality.

At the present time much work is being carried out in preventing the emergence of malaria further--epidemiological examinations, examination of blood of feverish persons in malarial plasmodia, control of mosquitoes etc.

In connection with the eradication of malaria, practical anti-malarial institutions have been reorganized in recent years in the parasitological departments of the municipal and regional sanitary-epidemiological stations; the Institute of Malaria and Medical Parasitology was united with the Republic Institute of Epidemiology and Hygiene for the same reason. Research has also been carried out in the field of

helminthic invasions, which has shown that in Armenia there are various helmintho-fauna and certain types of helminthic invasions have achieved comparatively wide distribution. In Armenia more than 20 types of parasitic worms have been detected. With the aim of improving the sanitary conditions of the population of the republic, massive dehelminthization was carried out and measures directed at improving the sanitary-hygienic conditions of population centers.

As the result of prolonged study of protozoan intestinal diseases, of local conditions of their development and distribution, the presence of many types of parasitic protozoa has been established--amebas, flagellates, sporozoa and infusoria. The mechanism of transmission of ameba cysts, the effect of the environment (outside the human organism) on parasites, pathogenicity of amebas which form tetranuclear cysts, endemic nature of amebiasis in regions of the republic, carrying of amebas in people, etc.

This permitted the clarification of many unclear aspects of the epidemiology of amebiasis and an approach to the development of recommendations for practical institutions in the republic.

Valuable research has been carried out in the course of several years on the problem of Leishmaniasis, which has made it possible to organize an effective struggle against this infection.

In accordance with the decision of the directive organs, much work was first begun in Armenia in 1935-1936 and carried out in the organization of sanitary-epidemiological stations in towns and rural districts of the republic, in imitation of the Russian Soviet Federated Socialist Republic and the Ukrainian Soviet Socialist Republic. These stations had well-equipped laboratories for carrying out epidemiological, bacteriological, hygienic and other special research. Moreover, there was constant concern for insuring these stations staffs of specialists.

In connection with the problem of prophylaxis of infection, great attention was paid to matters of disinfection. For its development, large monetary appropriations were made and preparations of doctor-disinfectionists, staffs of disinfectors was carried out, disinfecting stations and centers were built.

Since the organization of the Republican Institute of Epidemiology and Hygiene, the municipal and regional sanitary-epidemiological stations, disinfection and other practical institutions of epidemiological nature, and also sanitary-hygienic faculty at the medical institute have revealed the possibility of expanding scientific research and preparation of workers of the anti-epidemic service.

As a result of study of the processes of immunity and carrying of dysentery among people in the lowland, piedmont, and highland regions of the republic under various climatic-geographic conditions, it was established that the development of a diphtheria antitoxin was the result of an encounter of the organism with the microbe.

Discovery of these and a series of other factors and mechanisms permitted us to raise the question of scientific grounds and actual possibilities of eradication of diphtheria in the Soviet Union before All-Union Conference of Microbiologists (Moscow, 1939) for the first time in our country.

Immunization against diphtheria was first established in 1928, and vaccine prophylaxis of this infection has been systematically expanded and perfected further from year to year. As a result of this the morbidity from diphtheria has steadily decreased. In 1930-1931 a high index of morbidity from diphtheria was registered in Yerevan (58 patients per 10,000 of population, which was higher by far than in the average zone of the Russian Soviet Federated Socialist Republic). At the present time in the republic from time to time one encounters only isolated cases of the disease. It is noteworthy that in Yerevan in 1966 only 1 case of diphtheria was detected, while in the past in this city tens of cases were registered each month.

Many years of epidemiological observations and laboratory experimental data permit the assumption that as a result of the change in the conditions of existence of the causative agents of diphtheria, at the present time it is substantially changing biological activity. We assume that in this way it is possible to transform the causative agent of diphtheria into a micro-organism which will be harmless for children. This question received expression in reports of Armenian scientists at the last All-Union Conference of Epidemiologists, Microbiologists, and Infectionists and the IX International Congress of Microbiologists.

Much work has been carried out in Armenia in combating small pox. Although in the first years after the establishment of Soviet Rule in Armenia the public health organs frequently encountered sources of outbreaks of small pox in many population centers of the republic, subsequently as a result of carrying out massive vaccinations, only sporadic cases of this infection were observed. The task of complete eradication of small pox in the republic was completed thanks to massive immunization in 1934 and in the first four months of 1935 (since May 1935 small pox in Armenia has been completely eradicated).

Research work and prophylactic measures have been systematically carried out in the republic against plague and cholera, although the last cases of these diseases were registered in 1920 and 1921.

Data from many years of observation carried out in the republic confirm the opinion that cholera-like vibrios which are continually observed in reservoirs (ditches, still waters, etc.) may be the cause of infection of cholera in people.

One must assume that the danger of emergence of cholera in our country is associated with endogenous and with exogenous factors, and therefore it is necessary to direct measures against them.

Epizootological and epidemiological research carried out in Armenia indicates that plague bacilli are retained under highland conditions in the organism of common field mice and their fleas. This fact has great epidemiological importance and it must be considered in carrying out objective measures.

Special note should be taken of research associated with tularemia. The role of various types of rodents and other fauna of the republic (ticks, fleas, and other blood suckers) and their biology have been studied, and also the role of sheep and crabs as new sources of tularemia infection. Detailed study of epizootological and epidemiological conditions at the sites permitted the carrying out of typification of sources of tularemia in Armenia, the development of the necessary measures with success in applying them in practice.

Great attention was paid to questions of the epidemiology of intestinal infections, and their local characteristics. Problems of carrying typhoid-paratyphoid diseases, their duration, etc., have been extensively studied.

Study of the epidemiology of typhoid fever and paratyphoid in concrete conditions has permitted clarification and definition of a series of important facts which has facilitated the development of effective measures for its prophylaxis and treatment. This has also facilitated municipal and regional Soviet representatives of the workers in planning and carrying out measures for the welfare of the population centers (water supply, sewage, etc.)

A series of investigations was devoted to explaining the epidemiology of dysentery. In 1930, in a series of samples it was shown that an important role in the development and distribution of bacterial dysentery is played by a water factor, whose importance at that time was denied by the majority of investigators.

By carrying out clinical-microbiological parallels during dysentery and dysentery-like diseases and by prolonged epidemiological observations at the sources it was shown that the over-whelming majority of so-called dysentery-like diseases (colitis, enterocolitis, enteritis, common diarrhea, diarrhea with malaria, and measles, etc.) are of the nature of dysentery.

Great attention was paid to the study of chronic dysentery in children and the effect of mountainous climatic factors on its course, and to detection of an interconnection between amebiasis and bacterial dysentery. Finally, for a series of years (1940-1955) on the basis of data of laboratory research and epidemiological observations the effectiveness of active immunization against dysentery (peroral, parenteral, with the help of various vaccines and various methods of their use) was studied. It was shown that vaccinations used in the practical method against dysentery were not justified.

On the whole the carrying out of scientific research on practical measures has achieved significant successes in combatting dysentery. The republic long ago passed through the stage of epidemics of dysentery.

On the subject of intestinal infections, it is impossible not to touch upon research devoted to the fly factor and control of flies. Phenological observations have been carried out, species of flies have been studied under various every day and natural conditions, their biology, effect of climate, and also the connection between morbidity of people from intestinal infections with the fly factor. The realization of recommendations made on the basis of research carried out had essential importance for the practice of combatting intestinal infections.

Much research has been devoted to the questions of immunity, epidemiology, and prophylaxis of brucellosis, grippe, mosquito fever, Q fever, exanthematic fever, recurrent typhus (louse and mite), ratbite fever and other infections.

The study of territorial characteristics of the distribution of brucellosis contrary to epizootology and epidemiology permitted typification of sources to be carried out which insured the possibility of a differentiated approach to the development of prophylactic measures.

In the framework of the present article it is impossible to list all of the many seams which have been treated in Armenia related to epidemiology, parasitology, microbiology and clinical treatment of infectious diseases. We have presented only some of these. A significant part of the work accomplished has been presented at All-Union and Republican meetings and conferences, in international congresses and symposia.

The epidemiological service of the republic has maintained strict examination even under stress conditions of past wars.

Much work has also been carried out in border regions along the lines of sanitary-epidemiological protection of our borders, preventing the entry and penetration of infection into our country.

The prophylaxis of epidemic diseases, the struggle for further improvement of the sanitary conditions of the republic have been carried out not only by epidemiologists, parasitologists, microbiologists, but also by doctors of the general medical network.

During the elapsed period many reports have been published in central and republican journals, and also in publications of a series of united republics and foreign countries on question of infectious pathology and prophylaxis of infection. Moreover, monographs, textbooks, and manuals have also been published. Among them are "General and Specific Epidemiology" (in the Armenian language), "Vaccines, Sera, and Bacteriophages", "Malaria," "The Dispensary System and Control of Malaria," "Parasitic Protozoa," "Parasitology and Epidemiology of Amebiasis," "Diphtheria, Epidemiology and Prophylaxis," "Problems of Disinfection," and many others.

At the present time there are more than 350 doctor-specialists, of them 18 doctors and 59 with graduate degrees in science, working in the scientific and practical institutions of the sanitary-epidemiological service of the republic.

As a result of prolonged and intensive work of sanitary-epidemiological institutions in contact and with the help of general medical treatment the system has achieved significant successes: a series of infectious diseases have been eradicated.

The success and development of a socialist society, extensive scientific research and much experimentation accumulated in our republic in the field of control and prophylaxis of infectious diseases, permit us to place the question of further reduction and eradication of infectious diseases together with strengthening of scientific and practical workers of the republic in connection with specialists of the central scientific institutions of our country.